

Application No.: 10/625,427
Amendment dated: September 28, 2004
Reply to Office Action of July 14, 2004
Attorney Docket No.: 21295.62 (H5650US)

This listing of claims will replace all prior versions and listings of claims in this application:

a.) Listing of Claims

1. (previously presented) An autofocus module for a microscope-based system, comprising:
 - an objective that defines an image beam path which is perpendicular to a surface of a specimen
 - an illumination beam path that encompasses a light source for illumination of the specimen,
 - a light source for generating a measurement light bundle for determining a focus position;
 - an optical means for splitting the measurement light bundle in such a way that an eccentrically extending measurement light beam bundle is created;
 - a first dichroic beam splitter is provided in the image beam path of the microscope-based system, which couples the measurement light beam bundle eccentrically into the microscope-based system and directs it onto the surface of the specimen;
 - the optical means directs onto a detector element a measurement light beam bundle remitted from the microscope-based system; and
 - a cylindrical lens between the detector element and the optical means.
2. (previously presented) The autofocus module as defined in Claim 1, wherein the optical means is embodied as a prism that has one fully mirror-coated prism surface and one prism surface for total reflection, the mirror-coated prism surface generating, from the measured light bundle, an eccentrically extending measurement light beam bundle.
3. (previously presented) The autofocus module as defined in Claim 1, wherein the detector element is a two-dimensional area sensor.

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4. (previously presented) The autofocus module as defined in Claim 1, wherein the detector element comprises at least two linear sensors arranged parallel to one another.
5. (cancelled)
6. (cancelled)
7. (previously presented) The autofocus module as defined in Claim 1, wherein the light source, the detector element, the optical means, the cylindrical lens, the stationary lens and a displaceable lens, a second dichroic beam splitter, and the displacement means are arranged in a housing
8. (previously presented) The autofocus module as defined in Claim 7, wherein the lens is displaceable in manual or motorized fashion in the direction of a dashed double arrow.
9. (previously presented) The autofocus module as defined in Claim 7, wherein housing can be attached to the microscope-based system.
10. (previously presented) The autofocus module as defined in Claim 1, wherein the light source is a laser light source.
11. (previously presented) The autofocus module as defined in Claim 10, wherein the laser light source emits IR light as the measurement light.
12. (previously presented) The autofocus module as defined in Claim 1, wherein the microscope-based system and the autofocus module are connected to a computer.

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13. (new) An autofocus module for a microscope-based system, comprising:
 - an objective that defines an image beam path which is perpendicular to a surface of a specimen
 - an illumination beam path that encompasses a light source for illumination of the specimen,
 - a light source for generating a measurement light bundle for determining a focus position;
 - an optical means for splitting the measurement light bundle in such a way that an eccentrically extending measurement light beam bundle is created;
 - a first dichroic beam splitter is provided in the image beam path of the microscope-based system, which couples the measurement light beam bundle eccentrically into the microscope-based system and directs it onto the surface of the specimen;
 - the optical means directs onto a detector element a measurement light beam bundle remitted from the microscope-based system, wherein displacement means are provided which incline the detector element with respect to a plane defined by the surface of the specimen; and
 - a cylindrical lens between the detector element and the optical means,
14. (new) The autofocus module as defined in Claim 13, wherein the optical means is embodied as a prism that has one fully mirror-coated prism surface and one prism surface for total reflection, the mirror-coated prism surface generating, from the measured light bundle, an eccentrically extending measurement light beam bundle.
15. (new) The autofocus module as defined in Claim 13, wherein the detector element is a two-dimensional area sensor.
16. (new) The autofocus module as defined in Claim 13, wherein the detector element comprises at least two linear sensors arranged parallel to one another.

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17. (new) The autofocus module as defined in Claim 13, wherein the light source, the detector element, the optical means, the cylindrical lens, the stationary lens and a displaceable lens, a second dichroic beam splitter, and the displacement means are arranged in a housing
18. (new) The autofocus module as defined in Claim 17, wherein the lens is displaceable in manual or motorized fashion in the direction of a dashed double arrow.
19. (new) The autofocus module as defined in Claim 17, wherein housing can be attached to the microscope-based system.
20. (new) The autofocus module as defined in Claim 13, wherein the light source is a laser light source.
21. (new) The autofocus module as defined in Claim 20, wherein the laser light source emits IR light as the measurement light.
22. (new) The autofocus module as defined in Claim 13, wherein the microscope-based system and the autofocus module are connected to a computer.

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23. (new) An autofocus module for a microscope-based system, comprising:
- an objective that defines an image beam path which is perpendicular to a surface of a specimen
 - an illumination beam path that encompasses a light source for illumination of the specimen,
 - a light source for generating a measurement light bundle for determining a focus position;
 - an optical means for splitting the measurement light bundle in such a way that an eccentrically extending measurement light beam bundle is created;
 - a first dichroic beam splitter is provided in the image beam path of the microscope-based system, which couples the measurement light beam bundle eccentrically into the microscope-based system and directs it onto the surface of the specimen;
 - the optical means directs onto a detector element a measurement light beam bundle remitted from the microscope-based system, wherein a displacement means is provided which inclines the detector element exclusively about an axis that is parallel to the X axis of a Cartesian coordinate system; and
 - a cylindrical lens between the detector element and the optical means.
24. (new) The autofocus module as defined in Claim 23, wherein the optical means is embodied as a prism that has one fully mirror-coated prism surface and one prism surface for total reflection, the mirror-coated prism surface generating, from the measured light bundle, an eccentrically extending measurement light beam bundle.
25. (new) The autofocus module as defined in Claim 23, wherein the detector element is a two-dimensional area sensor.
26. (new) The autofocus module as defined in Claim 23, wherein the detector element comprises at least two linear sensors arranged parallel to one another.

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27. (new) The autofocus module as defined in Claim 1, wherein the light source, the detector element, the optical means, the cylindrical lens, the stationary lens and a displaceable lens, a second dichroic beam splitter, and the displacement means are arranged in a housing
28. (new) The autofocus module as defined in Claim 27, wherein the lens is displaceable in manual or motorized fashion in the direction of a dashed double arrow.
29. (new) The autofocus module as defined in Claim 27, wherein housing can be attached to the microscope-based system.
30. (new) The autofocus module as defined in Claim 23, wherein the light source is a laser light source.
31. (new) The autofocus module as defined in Claim 30, wherein the laser light source emits IR light as the measurement light.
32. (new) The autofocus module as defined in Claim 23, wherein the microscope-based system and the autofocus module are connected to a computer.